

## CANAWLERS AT REST

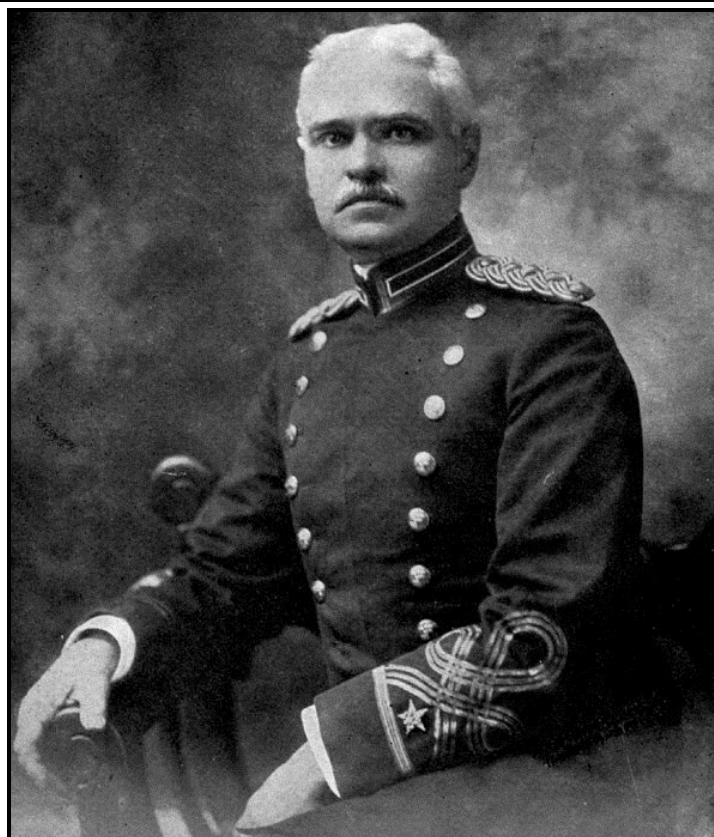
# GEORGE WASHINGTON GOETHALS

Find-A-Grave #399

**b. June 29, 1858**

**d. January 21, 1928**

**By Robert F. Schmidt**



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Born in Brooklyn, New York in 1858 to Belgium immigrant parents, who had arrived in 1848, George was named after the "father" of their newly adopted home. This lad was an achiever and even worked as a messenger and bookkeeper while attending the College of the City of New York. He was able to obtain an appointment to the Military Academy through his local congressman. After four years he graduated as a Second Lieutenant in the Army Corps of Engineers and was introduced to William T. Sherman, who was head of the Army at the time. Sherman asked what branch of the service George had chosen. George responded, "Engineers." Sherman was not impressed with his decision but admired his academic record.

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He again returned to the Military Academy. There he taught engineering to cadets for the next four years from 1885-89.

Returning to the field, George was assigned to the Tennessee River improvements project. The Mussel Shoals Canal was being completed and locks were being proposed at Colbert Shoals. Originally two locks were proposed similar to 11 others already built. Goethals felt that the lockage could be accomplished with just one 26-foot lift lock. He convinced others that such a lock could be built and after 3 years the project was completed. At Mussel Shoals, George also had to construct a supporting railroad to help with the lock and dam construction. It was here he worked with Sydney B. Williamson, a fellow engineer who he would call on at Panama.

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In the Spring of 1898, the war with Spain broke out. That April Chickamauga, Georgia was selected by Major General Nelson Miles as a training center for the Army. The Chickamauga Battlefield, best known for the action it saw during the Civil War, was also the nation's largest military training ground during the Spanish-American War. Goethals was sent there to work on sanitary water lines and wells. Despite his actions sanitary conditions in the camps were not maintained and disease such as typhoid broke out causing over 752 deaths. George asked for a more front line experience. He was sent to Porto Rico, but before becoming involved in any military action the armistice was declared.

Goethals, returned briefly to West Point as an instructor but was soon promoted to Major and commanded the Engineering Department at Newport, Rhode Island. He was involved in harbor development and harbor fortifications. In 1903 Secretary of War Elihu Root reorganized the Department of the Army. Root established a corps of 42 officers whose duty it was to support the new position of Chief of Staff. George was one of the 42 selected.

In 1904 George became Secretary of the Taft Fortifications Board whose goal was to improve U.S. costal forts from foreign attack. In this position he became a close friend of William Howard Taft.

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The California gold rush stimulated the building of a railroad across the Isthmus. Gold seekers rode 8 miles by rail and then traveled another 40 miles by mule or foot to reach Panama City where they hoped to catch a boat north to San Francisco. The railroad wasn't completed until 1855 when the gold rush was largely over. It is estimated that somewhere between 5,000-10,000 persons died in building the railroad. Most of these deaths were from diseases.

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President Roosevelt, not wasting any time, established the Isthmian Canal Commission (ICC) and on May 6, 1904 appointed John Findlay Wallace Chief Engineer of the project. Wallace previously was general manager for the Illinois Central Railroad. His was a brief tenure in Panama. He became overwhelmed with the disease-plagued country, dilapidated French infrastructure and equipment and bureaucracy of the ICC. After only 1 year, he resigned abruptly in June 1905. He was replaced by John Frank Stevens, who was the engineer who had built the Great Northern Railroad. Also in 1904 Colonel William C. Gorgas was appointed to improve sanitation and rid the zone of malaria and yellow fever. Walter Reed had learned in Cuba that the mosquito was the carrier of these diseases

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On February 18, 1907 Goethals was interrupted from his dinner party with friends and asked to come immediately to the White House. Goethals not knowing what to expect dressed in his best uniform and went to see the President. Roosevelt said that he had now two open positions in Panama to fill, chief engineer and head of the Canal Commission. There was only one way to efficiently handle the problems that Stevens incurred and that was to have one man for both positions. That man was to be George Goethals. Roosevelt also thought that an Army Engineer taking control of the project was less likely to resign than the prior two civilian chief engineers.

Goethals was in charge of the Commission and engineering. The canal work still remained under civilian control. Goethals reported only to William Taft and Roosevelt. He became a benevolent dictator on the canal project.

Stevens stayed briefly with the project to provide some transition between himself and Goethals. The changes and improvements that 30,000 workers had accomplished were recognized by Goethals and he sought to build on the base that Stevens had accomplished. The railroad system had been greatly enhanced. The health of the workers was greatly improved. The basic design of a lock-based canal had been laid out. It was up to Goethals to complete this plan.

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George officially took charge on March 21, 1907. Lock design had to be completed and most of the digging still lay ahead. The Gatun Lake Dam had not even been started. Being a military person, he was faced with much trepidation by the general staff and workers. Goethals manner to become "one of the men" and his fair dealings quickly turned attitudes. He became popular with the workers. Goethals made sure that American workers had access to baseball and movies as well as better housing arrangements. Workers were divided into gold "skilled" and silver "unskilled." He established a local weekly newspaper called the Canal Record from 1907-1914 that was distributed at no cost to the "gold" team workers.

Stevens had divided the work in Panama for his staff by function: that is digging, dredging, lock construction etc. Goethals changed this approach and divided the work into 3 geographic divisions with each assigned to one individual. The Atlantic Division was from the entrance at Limon Bay and included the Gatun Locks and dam construction. This section was assigned to William L Sibert, who was already on the scene and had worked on the Sault St. Marie locks in Michigan. The Pacific Division from the ocean to the Miraflores and Pedro Miguel locks was assigned to Goethals' fellow engineer from Mussel Shoals, Sydney B. Williamson. The most difficult section was the Central Division from Gatun Lake through the treacherous 9-mile-long Culebra cut. For comparison the Lincoln Tower Bank in Fort Wayne is 312 feet high (22 stories). Imagine digging dirt and rock for 1/3 of a mile wide for nine miles from that height down to 39 feet below sea level, that's what had to be dug. This Central Division was assigned to Major David DuBose Gaillard, who arrived with Goethals for the project. The work at Calebra was daunting. A path would be cleared only to be buried the next week by a landslide. The railroad hauled 160 loads of dirt a day from the Culebra cut to Gatun Dam site. At the busiest times there was one train inbound or outbound at the cut each minute. In April 1915 this cut was renamed the Gaillard Cut in honor of the Major, who died of a brain tumor December 5, 1913 only months before the canal opened in 1914. Panama, after taking over the canal in 2000, has re-

turned the cut to its former name.

The Panama Canal as finally planned and constructed may be described as follows:

A ship enters from the north from the Atlantic into a 7 mile sea level channel until it reaches the Gatun plateau. A 164 sq. mile Gatun Lake was created by building over a mile long earthen dam blocking the Rio Chagres River to produce a water level at 85 feet above sea level. To reach Gatun Lake a double set of 3 Gatun locks hydraulically lift ships onto the lake. Ships then proceed 32 miles across Gatun Lake, which in places follows the old channel of the Chagres River but elsewhere the flooded high hills were dredged to create a minimum 45 foot depth. Portions of this lake travel is through the Calebra Cut. Next the ships reach the Pedro Miguel Lock where they are lowed 31 feet into Miraflores Lake. They then proceed another 1 ½ miles to the double Miraflores Locks. After being lowered another 54 feet they enter the 8½ mile Pacific channel to reach the ocean. The whole trip is from North to South, not East to West as you might suspect. This entire process uses 52 million gallons of water. The new Post Panamax locks now being built will save 60% of its water usage.

The major barrier for the canal was the 300-foot 8-mile Calebra ridge that had to be widened to 1/3 of a mile and reduced to about 39 feet below sea level. This was about 4 times wider than the French had planned. When the French left about 19 million cubic yards of material had been removed at Calebra compared to a total of 96 million cubic yards removed in the final work. Stevens had removed some material but most of the digging and landslides were left for Goethals. Changes were also made by Goethals in lock dimensions to meet Navy battleship requirements.

Despite additional excavation, changes in lock dimensions and \$11 million in additional fortifications, the total project was \$23 million less than the original 1907 projection. The project was completed without any graft or corruption. There was not a hint of scandal. Without question, the credit goes to

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George Goethals, whose ability, courage and tenacity were of the highest order. The total cost was \$353 million, which included the payments to France and Panama.

The excavation work on the Panama Canal by each of the groups involved is summarized below:

1881-1903 French Excavation - 78 million cu. yards of earth /only 30 million used in final

canal

1904 -1906 Wallace & Stevens – 7 million cu. yards

1907-1914 George Goethals - 232 million cu. yards / 35 million just landslides - Calebra Cut

The final canal wasn't completed until August 15, 1914. The first ship to pass through the Panama Canal was the cement cargo ship S.S. Ancon.

George Washington Goethals was promoted to Major General and became the first Civilian Governor of the Panama Canal Zone. For seven years he had managed the Panama Canal construction. This was the largest engineering project in the world at that time. Goethals was also there to dismantle the workforce and develop a group of workers to operate the canal. He left the canal zone in September 1916 and returned to New York. When asked by a reporter what he was going to do next he said, "Look for a job."

Soon George was appointed by President Wilson as chairman of a board of inquiry concerning the Adamson eight-hour law that reduced regular hours for railroad workers to an eight hour day. In 1917 he became the State Engineer for New Jersey to supervise highway construction. During World War I he headed up the Quartermaster Department for the Army. He later became a consulting engineer for the Port of New York Authority and

recommended one authority for all states and entities in the New York harbor. To honor his service to the nation, the bridge between New York and New Jersey is named the Goethals Bridge and in World War II a liberty ship was named the U.S.N.S. George W. Goethals. George died of cancer in New York City on January 21, 1928 at age 69.